In the Claims:

Please cancel claims 6, 9, 12, 13, 16-19, 21 and 28. Pursuant to the Revised Format of Amendments, the status of all of the claims is given below.

Claims 1-6 (Cancelled)

7. (Previously Presented) The method according to claim 24,

wherein the condition (1) is further defined in that, when the selected sub-tree structure is replaced with the equivalent table to form a new data structure, a maximum search time Tmax_t calculated from the new data structure does not exceed a maximum search time Tmax calculated from the assumed tree structure; and

the condition (2) is further defined in that, when the selected sub-tree structure is replaced with the equivalent table to form a new data structure, a necessary amount of memory for the new data structure is smaller than that for the assumed tree structure.

8. (Original) The method according to claim 7, wherein a decision on whether the condition (1) is satisfied is made depending on whether the following equation is satisfied:

$$N_D \leq N_L \times K, \quad \text{when } K = Te/Tn,$$

where N_D is the number of items of data included in the selected sub-tree structure, N_L is the number of levels of the selected node or lower in the assumed tree structure, Tn is search time per node, and Te is search time per entry in the equivalent table.

9. (Cancelled)

10. (Previously Presented) The apparatus according to claim 25, wherein

the condition (1) is further defined in that, when the selected sub-tree structure is replaced with the equivalent table to form a new data structure, a maximum search time Tmax_t calculated from the new data structure does not exceed a maximum search time Tmax calculated from the assumed tree structure; and

the condition (2) is further defined in that, when the selected sub-tree structure is replaced with the equivalent table to form a new data structure, a necessary amount of memory for the new data structure is smaller than that for the assumed tree structure.

11. (Original) The apparatus according to claim 10, wherein a decision on whether the condition (1) is satisfied is made depending on whether the following equation is satisfied:

$$N_D \leq N_L \times K, \text{ when } K = Te/Tn,$$

where N_D is the number of items of data included in the selected sub-tree structure, N_L is the number of levels of the selected node or lower in the assumed tree structure, Tn is search time per node, and Te is search time per entry in the equivalent table.

12. (Cancelled).

13. (Cancelled).

14. (Previously Presented) The search system according to claim 26, wherein

the condition (1) is further defined in that, when the selected sub-tree structure is replaced with the equivalent table to form a new data structure, a maximum search time Tmax_t calculated from the new data structure does not exceed a maximum search time Tmax calculated from the assumed tree structure; and

the condition (2) is further defined in that, when the selected sub-tree structure is replaced with the equivalent table to form a new data structure, a necessary amount of memory for the new data structure is smaller than that for the assumed tree structure.

15. (Original) The search system according to claim 14, wherein a decision on whether the condition (1) is satisfied is made depending on whether the following equation is satisfied:

$$N_D \leq N_L \times K, \text{ when } K = \text{Te/Tn,}$$

where N_D is the number of items of data included in the selected sub-tree structure, N_L is the number of levels of the selected node or lower in the assumed tree structure, Tn is search time per node, and Te is search time per entry in the equivalent table.

Claims 16-19 (Cancelled).

20. (Cancelled).

21. (Cancelled)

22. (Previously Presented) The storage medium according to claim 27, wherein

the condition (1) is further defined in that, when the selected sub-tree structure is replaced with the equivalent table to form a new data structure, a maximum search time Tmax_t calculated from the new data structure does not exceed a maximum search time Tmax calculated from the assumed tree structure; and

the condition (2) is further defined in that, when the selected sub-tree structure is replaced with the equivalent table to form a new data structure, a necessary amount of memory for the new data structure is smaller than that for the assumed tree structure.

23. (Original) The storage medium according to claim 22, wherein a decision on whether the condition (1) is satisfied is made depending on whether the following equation is satisfied:

$$N_D \leq N_L \times K, \text{ when } K = Te/Tn,$$

where N_D is the number of items of data included in the selected sub-tree structure, N_L is the number of levels of the selected node or lower in the assumed tree structure, Tn is search time per node, and Te is search time per entry in the equivalent table.

24. (Currently Amended) ~~The method according to claim 6~~ A computerized method for controlling storage and retrieval of data in a memory device by constructing a data structure in which items of data are stored for search, comprising:

a) forming an assumed tree structure in which all the items of data are stored;

b) sequentially selecting a node from the assumed tree structure to select a sub-tree structure including the selected node and any child nodes of the selected node;

c) forming an equivalent table storing at least a portion of the items of data included in the selected sub-tree structure in a table form;

d) determining whether the selected sub-tree structure satisfies one or more predetermined conditions; and

e) when the selected sub-tree structure satisfies the one or more predetermined conditions, replacing the selected sub-tree structure with the equivalent table to construct the data structure,

wherein the predetermined conditions are that: 1) an amount of memory required to store a data structure including the equivalent table in place of the selected sub-tree structure is smaller than that required to store the assumed tree structure; and 2) search performance of the data structure is not lower than that of the assumed tree structure.

25. (Currently Amended) ~~The apparatus according to claim 9~~ An apparatus for constructing a data structure in which items of data are stored for search, comprising:

a tree formation section for forming an assumed tree structure in which all the items of data are stored;

a node selector for sequentially selecting a node from the assumed tree structure to select a sub-tree structure including the selected node and any child nodes of the selected node, forming an equivalent table storing at least a portion of the items of data included in the selected sub-tree structure in a table form, and determining the selected sub-tree structure when it satisfies one or more predetermined conditions; and

a data structure formation section for replacing the selected sub-tree structure satisfying the one or more predetermined conditions with the equivalent table corresponding to the selected sub-tree structure to construct the data structure,

wherein the predetermined conditions are that : 1) an amount of memory required to store a data structure including the equivalent table in place of the selected sub-tree structure is smaller than that required to store the assumed tree structure; and 2) search performance of the data structure is not lower than that of the assumed tree structure.

26. (Currently Amended) ~~The search system according to claim 13~~ A search system comprising:

a tree formation section for forming an assumed tree structure in which all the items of data are stored;

a node selector for sequentially selecting a node from the assumed tree structure to select a sub-tree structure including the selected node and any child nodes of the selected node, forming an equivalent table storing at least a portion of the items of data included in the selected sub-tree structure in a table form, and determining whether the selected sub-tree structure satisfies one or more predetermined conditions; and

a data structure formation section for replacing the selected sub-tree structure satisfying the one or more predetermined conditions with the equivalent table corresponding to the selected sub-tree structure to construct the data structure that is stored in the memory,

wherein the predetermined conditions are that : 1) an amount of memory required to store a data structure including the equivalent table in place of the selected sub-tree structure is smaller than that required to store the assumed tree structure; and 2) search performance of the data structure is not lower than that of the assumed tree structure.

27. (Currently Amended) ~~The storage medium according to claim 21~~ A storage medium storing a computer-readable program for constructing a data structure in which items of data are stored for search, the program comprising the steps of:

a) forming an assumed tree structure in which all the items of data are stored;

b) sequentially selecting a node from the assumed tree structure to select a sub-tree structure including the selected node and any child node of the selected node;

c) forming an equivalent table storing at least a portion of the items of data included in the selected sub-tree structure in a table form;

d) determining whether the selected sub-tree structure satisfies one or more predetermined conditions; and

e) when the selected sub-tree structure satisfies the one or more predetermined conditions, replacing the selected sub-tree structure with the equivalent table to construct the data structure,

wherein the predetermined conditions are that: 1) an amount of memory required to store a data structure including the equivalent table in place of the selected sub-tree structure is smaller than that required to store the assumed tree structure; and 2) search performance of the data structure is not lower than that of the assumed tree structure.

28. (Cancelled)

29. (Currently Amended) ~~A method according to claim 28~~ A computerized method for controlling storage and retrieval of data in a memory device by constructing a data structure in which items of data are stored for search, comprising:

forming an assumed tree structure in which all the items of data are stored;

sequentially selecting a node from the assumed tree structure to select a sub-tree structure including the selected node and any child nodes of the selected node;

forming an equivalent table storing at least a portion of the items of data included in the selected sub-tree structure in a table form; and

replacing the selected sub-tree structure with the equivalent table to construct the data structure, wherein the sub-tree structure is selected so as to satisfy the following conditions a) and b):

a) an amount of memory required to store the data structure is smaller than that required to store the assumed tree structure; and

b) search performance of the data structure is not lower than that of the assumed tree structure.